Toxicology and Applied Pharmacology

An Official Journal of the Society of Toxicology

Volume 134, 1995

Editor
EDWARD BRESNICK

Founding Editors
Frederick Coulston
Harry W. Hays
Arnold J. Lehman

Editors Emeriti
C. Boyd Shaffer
Gabriel L. Plaa
Robert A. Neal
A. Wallace Hayes
I. Glenn Sipes

Associate Editors
William O. Berndt
Ruth E. Billings
James A. Bond
Ernest C. Foulkes
Clay B. Frederick
Robin S. Goldstein
William F. Greenlee
Michael I. Luster
Mary Treinen Moslen
Raymond F. Novak
Curtis J. Omiecinski
Gary O. Rankin
Richard B. Schlesinger
Hugh A. Tilson

Academic Press, Inc.
Harcourt Brace & Company
San Diego New York Boston London
Sydney Tokyo Toronto

Copyright © 1995 by Academic Press, Inc.
All rights reserved

No part of this publication may be reproduced or transmitted in any form, or by any means, electronic or mechanical, including photocopy, recording, or any information storage and retrieval system, without permission in writing from the copyright owner.

The appearance of the code at the bottom of the first page of an article in this journal indicates the copyright owner's consent that copies of the article may be made for personal or internal use, or for the personal or internal use of specific clients. This consent is given on the condition, however, that the copier pay the stated per copy fee through the Copyright Clearance Center, Inc. (222 Rosewood Drive, Danvers, Massachusetts 01923), for copying beyond that permitted by Sections 107 and 108 of the U.S. Copyright Law. This consent does not extend to other kinds of copying, such as copying for general distribution, for advertising or promotional purposes, for creating new collective works, or for resale. Copy fees for pre-1995 articles are as shown on the article title pages; if no fee code appears on the title page, the copy fee is the same as for current articles.

0041-008X/95 $12.00

MADE IN THE UNITED STATES OF AMERICA

This journal is printed on acid-free paper.

CONTENTS OF VOLUME 134

Number 1, September 1995

CONTEMPORARY ISSUES IN TOXICOLOGY

Excitotoxins, Aging, and Environmental Neurotoxins: Implications for Understanding Human Neurodegenerative Diseases
Ralph Dawson, Jr., M. Flint Beal, Stephen C. Bondy, Donato A. Di Monte, and Gary E. Isom 1

REGULAR ARTICLES

Effects of Ammonium Perfluorooctanoate on Leydig Cell Function: *In Vitro, in Vivo,* and *ex Vivo* Studies
Lisa B. Biegel, Raymond C. M. Liu, Mark E. Hurtt, and Jon C. Cook 18

Cadmium-Induced Renal Damage and Proinflammatory Cytokines: Possible Role of IL-6 in Tubular Epithelial Cell Regeneration
Fujio Kayama, Takahiko Yoshida, Michael R. Elwell, and Michael I. Luster 26

A Possible Mechanism for the Increase in Serum Luteinizing Hormone Levels in Male Rats by Oxolinic Acid
Tomoya Yamada, Jun Nakamura, Yasuyoshi Okuno, Shunji Hosokawa, Masatoshi Matsuo, Hirohiko Yamada, and Mitsuaki Ohta 35

Lead- and Calcium-Mediated Inhibition of Bovine Rod cGMP Phosphodiesterase: Interactions with Magnesium
Devesh Srivastava, Richard L. Hurwitz, and Donald A. Fox 43

Developmental Neurotoxicity of Chlorpyrifos: Cellular Mechanisms
K. D. Whitney, F. J. Seidler, and T. A. Slotkin 53

Vitamin A or Zymosan Pretreatment Attenuates α-Naphthylisothiocyanate-Induced Liver Injury
Marc B. Bailie, Paul A. Jean, Patrick B. Lappin, Matthew J. Scozzaro, Therese M. Schmidt, Fredric J.-M. Moulin, and Robert A. Roth 63

Potential Molecular Targets Mediating Chemical Teratogenesis: *In Vitro* Peroxidase-Catalyzed Phenytoin Metabolism and Oxidative Damage to Proteins and Lipids in Murine Maternal Hepatic Microsomes and Embryonic 9000*g* Supernatant
Ling Liu and Peter G. Wells 71

The Effects of Diquat and Ciprofibrate on mRNA Expression and Catalytic Activities of Hepatic Xenobiotic Metabolizing and Antioxidant Enzymes in Rat Liver
Evan P. Gallagher, Timo M. Buetler, Patricia L. Stapleton, Changhong Wang, Dana L. Stahl, and David L. Eaton 81

Physicochemical Properties of Nonreactive Volatile Organic Chemicals to Estimate RD50: Alternatives to Animal Studies
Y. Alarie, G. D. Nielsen, J. Andonian-Haftvan, and M. H. Abraham 92

Spermatocyte Toxicity of 2-Methoxyethanol (ME) in Rats and Guinea Pigs: Evidence for the Induction of Apoptosis
Warren W. Ku, Robert N. Wine, Brenda Y. Chae, Burhan I. Ghanayem, and Robert E. Chapin 100

Inorganic Lead May Inhibit Neurite Development in Cultured Rat Hippocampal Neurons through Hyperphosphorylation
Marcey Kern and Gerald Audesirk 111

Suppression of Liver Cytochrome P450 by α-Hederin: Relevance to Hepatoprotection
Jie Liu, Yaping Liu, Peter Bullock, and Curtis D. Klaassen 124

Pulmonary Surfactant Subtype Metabolism Is Altered after Short-Term Ozone Exposure
Esther Putman, A. John F. Boere, Leendert van Bree, Lambert M. G. van Golde, and Henk P. Haagsman 132

Dose Effects on the Excretion of Urinary Metabolites of 2-[1,2,*methoxy*-^{13}C]Methoxyethanol in Rats and Mice
Susan Jenkins Sumner, Donald B. Stedman, Suk-Yee Cheng, Frank Welsch, and Timothy R. Fennell 139

Effect of Route and Pattern of Exposure on the Pharmacokinetics and Acute Hepatotoxicity of Carbon Tetrachloride
Uma Y. Sanzgiri, Hyo J. Kim, Srinivasa Muralidhara, Cham E. Dallas, and James V. Bruckner 148

Trichloroethene-Induced Autoimmune Response in Female MRL +/+ Mice
M. Firoze Khan, Bhupendra S. Kaphalia, Bellur S. Prabhakar, Mary F. Kanz, and G. A. S. Ansari . . 155

Effects of Developmental Methylmercury Exposure or Lifetime Lead Exposure on Vibration Sensitivity Function in Monkeys
Deborah C. Rice and Steven G. Gilbert 161

Source of Alkaline Phosphatase Activity in Epithelial Lining Fluid of Normal and Injured F344 Rat Lungs
Rogene F. Henderson, Gary G. Scott, and James J. Waide 170

Biotransformation and Hepatotoxicity of HCFC-123 in the Guinea Pig: Potentiation of Hepatic Injury by Prior Glutathione Depletion
Richard C. Lind, A. Jay Gandolfi, and Pauline De La M. Hall 175

ACKNOWLEDGMENT 182

ANNOUNCEMENT 183

Number 2, October 1995

A Physiologically Based Dosimetry Description of Acrylonitrile and Cyanoethylene Oxide in the Rat
Michael L. Gargas, Melvin E. Andersen, Steven K. O. Teo, Renu Batra, Timothy R. Fennell, and Gregory L. Kedderis 185

Differential Mechanisms of Induction of the Mitochondrial Permeability Transition by Quinones of Varying Chemical Reactivities
Tala R. Henry and Kendall B. Wallace 195

Interactions of Polychlorinated Dibenzo-*p*-dioxin, Dibenzofuran, and Biphenyl Congeners for Producing Rainbow Trout Early Life Stage Mortality
Erik W. Zabel, Mary K. Walker, Michael W. Hornung, Murray K. Clayton, and Richard E. Peterson 204

Evidence That Murine Preimplantation Embryos Express Aryl Hydrocarbon Receptor
Jeffrey M. Peters and Lynn M. Wiley 214

2,3,7,8-Tetrachlorodibenzo-*p*-dioxin Induces Diverse Retinoic Acid Metabolites in Multiple Tissues of the Sprague–Dawley Rat
Paul D. Fiorella, James R. Olson, and Joseph L. Napoli 222

Effect of Oxygen and Sodium Thiosulfate during Combined Carbon Monoxide and Cyanide Poisoning
Peter H. Breen, Schlomo A. Isserles, John Westley, Michael F. Roizen, and Uri Z. Taitelman 229

Effect of Erythropoiesis on Splenic Cadmium–Metallothionein Level Following an Injection of $CdCl_2$ in Mice
Kyong-Son Min, Norie Ohyanagi, Mitsue Ohta, Satomi Onosaka, and Keiichi Tanaka 235

***In Utero* and Lactational Exposure of the Male Rat to 2,3,7,8-Tetrachlorodibenzo-*p*-dioxin: Impaired Prostate Growth and Development without Inhibited Androgen Production**
Beth L. Roman, Rebecca J. Sommer, Keisuke Shinomiya, and Richard E. Peterson 241

Bronchiolarized Metaplasia and Interstitial Fibrosis in Rat Lungs Chronically Exposed to High Ambient Levels of Ozone
Barbara L. Stockstill, Ling-Yi Chang, Margaret G. Ménache, Paul W. Mellick, Robert R. Mercer, and James D. Crapo 251

Microcystin Uptake and Inhibition of Protein Phosphatases: Effects of Chemoprotectants and Self-Inhibition in Relation to Known Hepatic Transporters
Maria Runnegar, Norbert Berndt, and Neil Kaplowitz 264

Demethylation of Methyl Mercury in Different Brain Sites of *Macaca fascicularis* Monkeys during Long-Term Subclinical Methyl Mercury Exposure
Marie E. Vahter, N. Karle Mottet, Lars T. Friberg, S. Birger Lind, Jay S. Charleston, and Thomas M. Burbacher 273

Effects of Glutathione Depletion on the Cytotoxic Actions of Cadmium in LLC-PK_1 Cells
Walter C. Prozialeck and Peter C. Lamar 285

Toxicity of 2,3,7,8-Tetrachlorodibenzo-*p*-dioxin (TCDD) to the Human Thymus after Implantation in SCID Mice
Cees de Heer, Henk-Jan Schuurman, A. K. Djien Liem, André H. Penninks, Joseph G. Vos, and Henk van Loveren 296

The Phytoestrogen β-Sitosterol Alters the Reproductive Endocrine Status of Goldfish
Deborah L. MacLatchy and Glen J. Van Der Kraak 305

Identification of the Mouse Liver 44-kDa Acetaminophen-Binding Protein as a Subunit of Glutamine Synthetase
S. J. Bulera, R. B. Birge, S. D. Cohen, and E. A. Khairallah 313

Mercury Uptake by Primary Cultures of Rat Renal Cortical Epithelial Cells. II. Effects of pH, Halide Ions, and Alkali Metal Ions
Tetsuya Endo, Masakatsu Sakata, and Zahir A. Shaikh 321

ANNOUNCEMENTS 326

AUTHOR INDEX FOR VOLUME 134 327

SUBJECT INDEX FOR VOLUME 134 328

CHEMICAL INDEX FOR VOLUME 134 333